



## **Design Architect: Fun Zone**

Performance Task

### **Introduction**

Your design firm has been hired to propose a new design for the Burger Queen Fun Zone activity zones. In the past few years, Burger Queen has noticed that not as many visitors are coming to the Burger Queen Fun Zone. They gathered perception data from their customers all over the world and found that the Fun Zone areas lost their appeal. The Burger Queen executives have asked that you design a new Fun Zone.

### **Big Idea / Essential Questions**

#### **Big Idea**

- Technological design is a creative process that anyone can do that may result in new inventions and innovations.
- Geometric relationships can be described and analyzed and classified based on spatial reasoning.

#### **Essential Questions**

- What steps are involved in technological design and problem-solving when creating inventions and innovations?
- How are spatial relationships, including shape and dimension, used to draw, construct, model and represent real situations or solve problems?

### **G.R.A.S.P.**

#### **Goal**

Your goal is to use your creativity and imagination to create a new 30 foot by 30 foot Fun Zone space for the Burger Queen. Come up with play areas, climbing areas and more that will excite children of all physical abilities, ages 1-13.

#### **Role**

You are part of a team of designers. You will be working together to create a new Fun Zone space for the Burger Queen restaurant

#### **Audience**

You will show and explain your ideas to the bosses at the Burger Queen. They will want to see that you have created a space that is fun, exciting and colorful. They will also be

checking your design to make sure it is appropriate for kids ages 1-13.

## Situation

In the past few years the Burger Queen has noticed that kids are not playing in their Fun Zone. They want you and your team to help them redesign the 30 foot by 30 foot space so that it is fun and exciting for kids. You will need to use what you know about design and do some research on what would excite kids of all ages. You will present your final design and information to the bosses. If they like it, your team will be well paid!

## Products

### 1. Proposed Design

Make a drawing of your Fun Zone design. The drawing should have labels that help the reader understand what is in each part of the space. Be sure to show measurements of each piece of equipment you use. Include the perimeter of the Fun Zone and calculate the area of each section of the Fun Zone.

- What equipment will be in your Fun Zone?
- What are the measurements of any equipment you will use?
- How can you figure out the area of different spaces if you know their measurements?

### Scale Drawing - Design Architect

Achievement Levels	1	2	3	4
<b>Drawing</b> (x1)	Drawing is not very detailed and not many features in the Fun Zone are labeled.	Drawing is somewhat detailed and features in the Fun Zone are labeled and identifiable.	Drawing is detailed and features in the Fun Zone are labeled and easy to identify.	Drawing is very detailed and features in the Fun Zone are labeled and easy to identify.
<b>Engineering and Design</b> (x1)	Product shows that student(s) put very little thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put some thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put a lot of thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.
<b>Creativity</b> (x1)	Product shows little use of creative thinking throughout the design process.	Product shows some use of creative thinking throughout the design process.	Product shows use of creative thinking throughout the design process.	Product shows strong use of creative thinking throughout the design process.
<b>Research</b> (x1)	Product shows that minimal research was done around the topic.	Product shows that some research was done around the topic.	Product shows that adequate research was done around the topic.	Product shows that thorough research was done around the topic.
<b>Area &amp; Perimeter</b> (x1)	Design and math work show little understanding of the concepts of area and perimeter.	Design and math work show some understanding of the concepts of area and perimeter.	Design and math work show adequate understanding of the concepts of area and perimeter.	Design and math work show strong understanding of the concepts of area and perimeter.

## 2. Specification Report

Write a one page report that explains the estimated cost of building the new Fun Zone. Include a simple design problem reflecting a need or want for Burger Queen. Do some research on the prices of different equipment you want to use to solve the design problem. Round each price to the nearest dollar and find an estimated total cost. Also remember to think about how much you have to pay people to build the Fun Zone. The report should also explain why Burger Queen should spend this money to build the new Fun Zone you have designed.

- How much will the equipment for the Fun Zone cost?
- What strategies can you use to estimate prices to the nearest dollar?
- How much might it cost to pay people to help build the new Fun Zone?

### Specification Report - Design Architect

Achievement Levels	1	2	3	4
<b>Writing Conventions</b> (x1)	Many errors in grammar or spelling.	Some errors in grammar or spelling.	Few errors in grammar or spelling.	No errors in grammar or spelling.
<b>Organization and Style</b> (x1)	Product is unorganized and needs a clear introduction, supporting facts or a summary.	Product is somewhat organized with some of the following: Introduction, supporting facts and details and a summary.	Product is organized with most of the following: Introduction, supporting facts and details and a summary.	Product is very well organized with all of the following: Introduction, supporting facts and details and a summary.
<b>Content</b> (x1)	Very little information related to the materials of the design, the time it will take to complete, and how much the project will cost are included.	Some information related to the materials of the design, the time it will take to complete, and how much the project will cost are included.	Most information related to the materials of the design, the time it will take to complete, and how much the project will cost are included.	All information related to the materials of the design, the time it will take to complete, and how much the project will cost are included.
<b>Engineering and Design</b> (x1)	Product shows that student(s) put very little thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put some thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put a lot of thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.
<b>Operations with Whole Numbers</b> (x1)	Product shows very little understanding and use of addition, subtraction, and multiplication strategies to find costs.	Product shows some understanding and use of addition, subtraction, and multiplication strategies to find costs.	Product shows understanding and use of addition, subtraction, and multiplication strategies to find costs.	Product shows excellent understanding and use of addition, subtraction, and multiplication strategies to find costs.
<b>Research</b> (x1)	Product shows that minimal research was done around the topic.	Product shows that some research was done around the topic.	Product shows that adequate research was done around the topic.	Product shows that thorough research was done around the topic.
<b>Estimation</b> (x1)	Few costs are accurately estimated to the nearest ten dollars.	Some costs are accurately estimated to the nearest ten dollars.	Most costs are accurately estimated to the nearest ten dollars.	All costs are accurately estimated to the nearest ten dollars.

## 3. Presentation Portfolio

You need to present your ideas to the bosses at Burger Queen. This presentation should be persuasive. Create a portfolio, or collection of your ideas, related to the Fun Zone. You should show them your overall design and different equipment that will be

used. Explain the size of equipment and sections of your Fun Zone. You should also show color ideas. This portfolio can be a collection of pictures that you draw by hand or that you get from a book or the internet. Be sure that you are ready to talk about each picture and why that piece is important to the design.

- What materials/equipment will you use in your design?
- What colors will be in your Fun Zone?
- How will you show all of your design ideas to the audience?

## Presentation Portfolio - Design Architect

Achievement Levels	1	2	3	4
<b>Persuasive Speaking</b> (x1)	Audience is not persuaded because there is little explanation of the benefits of the Fun Zone.	Audience may or may not be persuaded through a partial explanation of the benefits of the Fun Zone.	Audience is somewhat persuaded through an adequate explanation of the benefits of the Fun Zone.	Audience is persuaded through a very detailed explanation of the benefits of the Fun Zone.
<b>Supporting Materials</b> (x1)	Very few visuals used in the product are creative or support the information being presented.	Some visuals used in the product are creative and support the information being presented.	Most visuals used in the product are creative and support the information being presented.	All visuals used in the product are creative and strongly support the information being presented.
<b>Engineering and Design</b> (x1)	Product shows that student(s) put very little thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put some thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put a lot of thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.
<b>Research</b> (x1)	Product shows that minimal research was done around the topic.	Product shows that some research was done around the topic.	Product shows that adequate research was done around the topic.	Product shows that thorough research was done around the topic.

## 4. Play Zone Model

Your task is to design a model of a play zone that will be part of a new restaurant. Some ideas of items that you could include in your play zone are a slide, ball pit, zip line, and tunnel. Make sure that your model includes measurements and that you label important parts of your play zone.

- What items will be included in your design that kids will enjoy?
- What dimensions will your equipment be in order to fit in the Fun Zone?
- How big or small will your model be?
- What materials will you use to make your model?

## Play Zone Model - Design Architect

Achievement Levels	1	2	3	4
<b>Model</b> (x1)	The model is not an accurate reproduction of what a real-life Fun Zone would look like.	The model is a somewhat accurate reproduction of what a real-life Fun Zone would look like. It has some attention to detail.	The model is a mostly accurate reproduction of what a real-life Fun Zone would look like. It has attention to detail.	The model is a very accurate reproduction of what a real-life Fun Zone would look like. It has great attention to detail.
<b>Measurement</b>	Appropriate measurement	Appropriate measurement	Appropriate measurement tools are used somewhat	Appropriate measurement

Achievement Levels	1	2	3	4
	tools are not used during model creation.	tools are used with little accuracy to create the model.	tools are used accurately to create the model.	tools are used accurately to create the model.
Engineering and Design (x1)	Product shows that student(s) put very little thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put some thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.	Product shows that student(s) put a lot of thought into the appropriate equipment, its size, and colors that will be best for the Fun Zone.